

## CLAIMS

1. A control apparatus for a rotating machine, comprising:
  - an integration unit that computes a phase by integrating primary angular frequencies obtained based on an angular velocity command;
  - 5 a power converting unit that applies a three-phase voltage to the rotating machine in accordance with a three-phase voltage command;
  - a current detecting unit that detects a three-phase current flowing through the rotating machine;
  - a coordinate converting unit that conducts a coordinate
  - 10 conversion for converting the three-phase current detected by the current detecting unit into a current on a rotation two-axis coordinate based on the phase output by the integration unit, and for converting a voltage command on the rotation two-axis coordinates into the three-phase voltage command; and
  - 15 a voltage command computing unit that computes the voltage command on the rotation two-axis coordinate based on the primary angular frequency and absolute values of each axis component of the current on the rotation two-axis coordinate.
- 20 2. The control apparatus according to claim 1, wherein the voltage command computing unit computes an excitation current command that is changed depending on a load, obtains a minor excitation current command by dividing the absolute values of the respective axis current components on the rotation two-axis coordinate by the excitation
- 25 current command, and computes the voltage commands on the rotation

two-axis coordinate based on the minor excitation current command obtained and the primary angular frequency.

3. The control apparatus according to claim 1, further comprising a  
5 frequency correcting unit that computes a frequency correction amount based on the current on the rotation two-axis coordinate, and that subtracts the frequency correction amount from the primary angular frequency applied based on the angular velocity command, and that  
10 outputs the primary angular frequency from which the frequency correction amount is subtracted.